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Adaptation of the Moodle for application in distance education course at the state university of campinas

Mônica Cristina Garbin[1], Sergio Ferreira do Amaral[1], Carlos Otávio Schocair Mendes[1,2], Eduardo Ogasawara[2], Jose Macario de Siqueira Rocha[1]

[1]*Faculty of Education – State University of Campinas (UNICAMP)*
P.O. Box 6150 – zip code 13083-970 –Campinas– SP – Brazil
[2]*Federal Center of Technological Education Celso Suckow da Fonseca (CEFET-RJ) - Rio de Janeiro, RJ – Brazil*
monica_garbin@yahoo.com.br, amaral@unicamp.br,{schocair,eogasawara}@cefet-rj.br, jodesi@upvnet.upv.es

Abstract

This paper presents Pedagogical Platform for Interactive Communications (PPIC) which is a platform developed to support Distance Learning Courses (DLC). PPIC is based on Moodle and was developed by LANTEC/UNICAMP for support training of teachers in using technological tools in classrooms. The customization of PPIC was based on a survey that was conducted with 2.100 users that indicated the most frequent problems that they have faced while being a student in previous DLC. As many problems were addressed by our developed platform, we expect that our PPIC succeed in support DLC.

Keywords: Distance Learning Courses, Pedagogical Platform;

1. Introduction

Recently we observe the growth of adoption of Distance Learning Courses (DLC). DLC is commonly support by set of Pedagogical Platform of Interactive Communications (PPIC). As many of these platforms are based on asynchronous interactions, we present a PPIC based on Moodle Platform that is combined with mobile phone to support asynchronous interactions. We evaluate our approach through a pilot course named "Use of Learning Objects in the Classroom Mediated by Digital Technologies". This course is being offered in distance mode through mobile phone, held at the Laboratory of Applied New Technologies in Education (LANTEC) in Faculty of Education of the State University of Campinas (FE / UNICAMP).

This pilot course is being held to evaluate the usage of the technological resources as enabling tools to support the work of teachers. The pilot course is offered completely as distance learning for teachers of mathematics in the elementary school and contains a total of 66 hours of lessons. In this context, we understand that schools should promote access to knowledge and cultural goods required by contemporary society and we seek new strategies for teaching students and promote their cognitive development.

The selection of the initial students (teachers of mathematics) for the course was based on an online survey containing questions to define the profile of the applicants. We have included in the survey questions about their prior experience and their difficulties while using distance education platform. Based on the data collected from the survey we identified some aspects to adapt at Moodle platform to overcome the difficulties of the students.

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2. Moodle: Virtual learning environment

Ketterle (2009) has observed that the use of systems for distance education, student blogs, wiki groups, chats and instant messages has grown into the universities and outside them. This trend is due mostly because they are easy, fast and convenient. Additionally, Paiva (2010) observed that many applications were developed for Virtual Learning Environments (VLE) that brought features that contributes to increase of shared knowledge and communication between students.

According to the type of application used, the VLE can be classified as Integrated Learning Environments (ILE), Integrated Distributed Learning Environments (IDLE), Systems for Learning Management (SLM), and Virtual Learning Spaces (VLS). For example, VLS provide features for students to share knowledge, collaborate, interact and develop skills using the virtual platform. However, in order to make these technological resources efficient for learning, they must be related to a set of goals and activities that are in agreement of pedagogical methods.

Most of VLE offer tools such as forum, email, blog, wall (asynchronous communication), chat (synchronous communication), wikis, glossaries, texts, and surveys (collective construction and interactive tools). They also include educational activities, books, videos (educational tools); profile, registration, groups, databases, frequency control and daily class (administrative tools). In this context, the Moodle (Modular Object Oriented Dynamic Learning Environment) tool is defined as a platform built from a constructivist perspective that emphasizes research and collaboration through its structure and available features developed for training (Martins and Giraffe 2008). The training features includes both communication (chats, forums, wikis, blogs, glossaries, quizzes) and information (textual data, audio and video links, and search) tools.

Considering the aforementioned characteristics, the Moodle is an open-source, totally free and customizable VLE (Ribeiro and Medina 2009). The VLE can be adapted using WML, PHP and MySQL. The choice of Moodle for VLE is usually motivated based on its simplicity, adaptability and open source configuration under GNU General Public License (GPL). These characteristics explain its usage throughout several countries.

3. Research Method

We have initially selected 260 students (teachers of mathematics in the elementary school) based on an application form. The survey included several questions, among which important ones were related to characteristics of these students: courses taught, their experience, and the IDEB (Index of Development of Basic Education) school where they work. This survey was designed for teachers of mathematics, whose school was below the average national assessments. This was a reasonable constraint, since the pilot course aims to help improve the conditions of teaching and learning for the schools identified as under these conditions.

The application form was developed using a tool that enables you to perform online survey, enabling subscriptions from all Brazilian regions (north, northeast, middle west, southeast, south). The survey included five (5) blocks of questions, which were aimed at:

- Block 1: Identify the candidates who signing up;
- Block 2: Expectations for the course and previous experience in distance education;
- Block 3: Identify the degree of experience of the students using cellphone;
- Block 4: Identify the level of the student's interaction with technology, and its impact in their daily lives;
- Block 5: Check the student's usage of technology in classroom practices;

It is worth to mention that in this paper we analyze the issues related to Block 2, *i.e.*, analyzing doubts and problems that these students faced in distance education courses held previously.

4. Results

We had a total of 2467 candidates as presented in Figure 1. Therefore, it is a remarkable predominance of members of the south and southeast, which are the most developed regions. We also provided a question whose goal was to allow the candidates to list the major difficulties that they have encountered during their last course that they

have already attended in VLE. From the answers of the survey we were able to group the answers in the following categories of problems: VLE infrastructure; distant mentoring, technical issues, organization of the material, peer collaboration, and contents. Moreover, it is important to note also that approximately 20% of those enrolled had never attended a DL course.

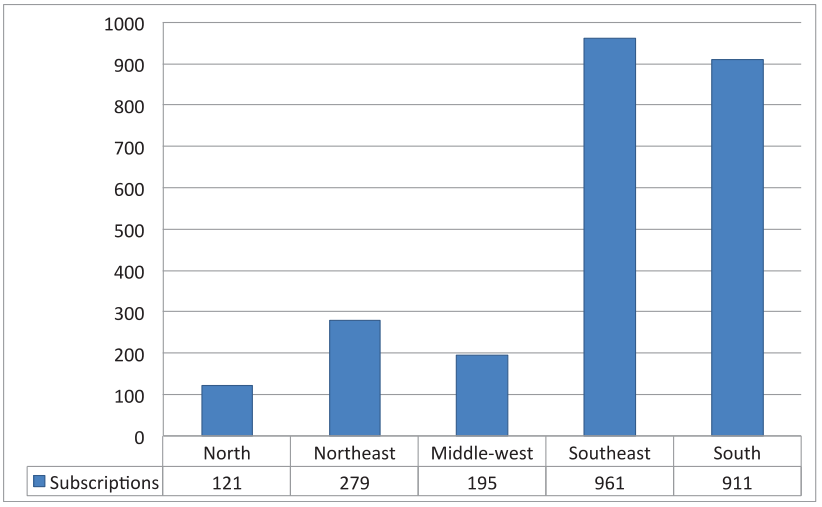

Figure 1. Candidate subscriptions

When analyzing the responses, it is evident that the biggest problem faced by the students of distance education in the country refers to the use of technology, more specifically those related to technical questions, questions about the VLE. We can list including: difficulties to post some work, problems filling some fields of platform tools, problems in the usability of Moodle, difficulties to run programs that were asked in the course; problems in understanding the organization of content within the learning environment, among others.

To address these issues, we have decided to use a few tools in our pilot course held in Campinas. We also decided to implement customizations of Moodle to prevent students to face the same problems that they had before. More importantly, the choice of a few tools and a clean layout (without cognitive overhead) aimed to support students in their organization and use of the VLE. Additionally, we have prepared a self-instructional material (both classroom-videos as textual elements) for the first module of the course. This allows for the students to get used with the VLE and know each main option of the tools used in the course. Our VLE has the following tools and their respective objectives:

- Groups: This tool allows for students to know who is part of their group, which allows them to become better acquainted with each other;
- Profile: This tool allows for students to post information about them, letting them to specify their interests, which enables the establishment of new connections;
- Forum: This tool allows for exchanging information and knowledge, and discussion of issues that are relevant to the course theme;
- Evaluation: This tool allows for posting notes by tutors and verification of notes by students;
- Portfolio: This tool is dedicated to posting the work of individual students;
- Subjects: This tool enables to update the organization's weekly course, providing students with the videos and texts relating to each discipline.

Additionally, due to the problems faced by students in their previous experiences reported on their registration form, we designed a layout for easy access and fast performance. We have very little images loaded, so that students who choose to access from their cell phone do not have major difficulties. To this end, the environment was systematized as presented in

Figure 2.

Figure 2. Main menu of our VLE

The pilot course is based on an educational proposal that focus in collaboration that can be defined as a process of joint construction, in which a group of people has a common goal to be achieved. The group cooperates collectively to take decisions (Garbin, 2010) during the course. Moreover, the link between the technological resources used for education with the concept of collaboration to be used in the course provides to the students different perspectives and enable a better relationship between teaching and learning.

In this context, we opted for the basic tools that allow students to interact among themselves and with their mentors. We have target the idea of presenting information, sharing data and interaction between users using the concepts from the Web 2.0. Sabin and Leone (2009) states that the Web 2.0 community-based virtual spaces fill with features such as open, self-organizing, adaptive, agile, and easy to use interface for the users. Furthermore, they point to be a common platform that can be accessed by various types of equipment, computer programs and services to support distributed and collaborative environment. These features allow for users to share, comment, interact with their groups, and also edit or create new content.

5. Conclusions

In this article we developed a VLE based on Moodle platform for a pilot course offered by the Faculty of Education of the University of Campinas. The VLE that we have developed was influenced by the analysis of a survey conducted with the candidate students for our pilot course.

The organization of the VLE was designed to address the problems faced by students on previous experience with distance courses. We have organized the tools for the VLE seeking to simplify the use of the environment for the students, and enable a fast access for the activities and materials of our pilot course. We intent to evaluate the VLE during our pilot course, by measuring its effectiveness through surveys conducted with our students. From the results, it will be possible to check if students can use the VLE easily. We intent to verify our hypothesis that states that the environment can be easy to use from both normal computer and cellphones.

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